CHAPTER IX

INDUSTRIES AND INCENTIVES

Pollution can grow to be cancerous. Before it does the environment should be saved. This is a great task today. The intensity of the problem makes it necessary to have simultaneous and coherent approach from different angles to reduce the ill effects since eradication is not easy. Environmental protection is to be achieved both by prevention and control of pollution. Though regulatory approaches envisage provisions for attaining both, the urgency for effective implementation of this protection invites application of new and novel measures. Moreover, the inherent weakness of the regulatory mechanism and delay in judicial process also make new and varying attempts inevitable.

The basic jurisprudential theory that governs our environment laws is that of 'policing the society' instead of managing the society in a co-operative model of participatory democracy.

Management of environmental resources such as air, water, land and forest cannot be efficiently handled by policing alone.


Enforcement is a problem in regulations because polluters do not want to incur cost and prefer to argue with the regulatory agency on feasibility.

3. Supra. n.1,p.32. Under this theory the legislators as well as administrators assume that their task is to act as vigilant policemen who detect crimes and bring the culprits to courts. Thus an atmosphere of conflict prevails instead of co-operation.
A responsible and benevolent government is to tackle these problems by other methods. Economic incentives are a means to achieve co-operation by deviating from the usual path of punishing the violators. It aims at rewarding the non-violators and serve as an additional instrument for abating industrial pollution. It also aims at overcoming the difficulties in the conventional approach of setting uniform standards. It is to provide a market place for environmental quality. In market economy everything is expressed in prices and in environmental protection it is the evaluation of social costs. Market will be encouraged to solve the economic problems at hand and people are to act voluntarily.

4. Armin Rosencrantz, "Economic Approaches to Air Pollution Control" 23 Environment, 25 (1981). Regulatory approaches to pollution control are economically inefficient in that they require the same proportionate reductions in emissions from sources with varying costs, rather than requiring greater reductions from sources able more cheaply to abate pollution.

5. Ibid.

6. Heinrick Weiss, "Making Market Forces to work to Improve the Environment" Environmental Policy and Law, 21/3/4 (1991) 153 at p.154. According to this author 'environmental protection must be more than just crisis management damages. It must look ahead and help shape the future by taking advantage of market forces and technical progress. For this integrated systems of environmental protection are called rather than isolated concepts.

Economics of Environment

The task of managing environmental resources like air, water, land and forests is a difficult one because private property rights cannot be attached to any of these resources. The prevailing notion is that of 'first come first served' resulting in over exploitation and degradation. The degradation of environmental quality is due to several reasons direct and indirect, resulting in overuse as well as misuse of resources. The concept of 'free resource' deep rooted in the society results in delinquency mainly because these resources are thought to be everlasting public goods and market forces cannot attach a price in order to exclude those who cannot pay. Damage resulting from the consumption of unpriced but valuable resources is a major social problem. But it is already late for our decision making processes to recognise explicitly that environment is not to be taken as a free resource and like other resources it is to be

9. Supra. n.2 at p.4. Industrial air pollution spoils clear, breathable air, upstreams polluters preclude downstream etc.
10. Id., p.26. For, the fact that a factory does not pay when particulates, SO₂ and other wastes are emitted into atmosphere does not mean that no one pays. The external costs of such uses are paid by other members of society.
considered as an input which has to be paid for. Introduction of economic incentives aim at reducing the misuse and degradation of environmental quality by attaching economic impediments to charge consumers and producers the true cost of their action as well as promote control measures by providing concessions and rewards. They are designed to increase environment protection and economic productivity by providing incentives for businesses and individuals to go beyond what regulators can achieve. Providing economic impediments is a way of curtailing the use of such resources. The idea is to rationalize the conflicting economic and social benefits inherent in pollution control.

**Growth of Economic Incentives as a Tool of Environmental Protection**

The drawbacks of regulatory mechanism in providing sufficient safeguards for environmental quality made economists look for alternatives. A.C.Pigou, a great neoclassical economist was the first to suggest a pollution tax or effluent charge for controlling

12. Robert N. Stavins, "Harnessing Market Forces to protect the Environment", 31 (1) Environment (1989), 5. In effective natural resource use environmental degradation can be reduced if consumers and producers are to pay full social cost of the consequences.
13. Id., p.7. The conventional approach of setting uniform standards or requiring specific control technologies is an increasingly difficult and expensive way to achieve environmental improvement.
environmental degradation. He observed that pollution occurs because the sources of pollution fail to take into account the social cost. The regulatory mechanism makes the environment exclusively a government problem with very little role for the public. The fact that the regulatory system is actually a process of draining the public fund with weak incentives for research and development became gradually evident. Thus fostering economic incentives has its roots in the failure of regulations to consider the corresponding fiscal implications of affording public fund for the ever increasing problem of pollution. The purpose is to meet the externalities involved in pollution problems to some extent.

Economic incentives have two simultaneous targets in view. The first is to encourage the polluters to adopt better control devices by tax or tax concessions. The second is to internalize the external costs of pollution control and thus provide better environmental management. The major thrust of economic instruments is to develop cost effective technologies

14. Supra. n.8.

15. Regulatory approaches to pollution control are economically inefficient for it fails to encourage compliance, it creates weak incentives for research and development and also offers no incentive for sources to reduce emissions below the levels required by law. Regulations instead encourage lobbying for outbacks and delays in order to avoid large compliance costs. Rosencranz, op. cit., p.25.
to reduce pollution and generate revenues to finance monitoring and enforcement costs. It advocates the principle that polluter should pay for the adverse effects of his action. Providing incentives is thus an arrangement aimed at making compliance with laws economically attractive. The word incentive means an 'encouragement' or 'that which incites to action'. The encouragement can be positive or negative, direct or indirect, in cash or in kind, before or after pollution. Thus, a subsidy or concession inducing the polluter to make use of the facility provided to instal pollution control machineries at reduced rate serves as a positive incentive whereas a charge or tax on pollutants compelling him to seek the best available technology to avoid economic loss due to pollution is a negative incentive. Both methods encourage industries to adopt pollution control measures by helping to reduce the net production cost, while, eco-labelling encourages industries to produce environment friendly products thus providing better market facilities. Similarly the goal must be the effluent free plant nor "end of the pipe line treatment". Thus, economic incentives encourage innovation and technical progress through user benefits and tax concession.16

Types of incentives

OECD has identified five general categories of incentives namely subsidies, charges, deposit or refund schemes, creation of a market in pollution credits and enforcement incentives.17

16. Supra. n.6.
Enforcement incentives are negative in nature and in turn include fines, non-compliance fees, administrative charges, performance bonds, damage compensation, etc.\textsuperscript{18}

**Subsidies**

Subsidies constitute an arrangement found within the regulations, which provide that in order to promote pollution control measures, the government will arrange loan facilities at subsidised rates. Such a subsidy is mostly an income tax concession for the installation of effluent control machinery.\textsuperscript{19} It may be a customs duty exemption for importing such machineries or a rebate in the electricity charges for the operation of such machineries. John Hopkins considered subsidies as negative incentives since they are an economically inefficient means of reducing pollution.\textsuperscript{20}

Furthermore, all proposals for tax breaks or other forms of subsidy provide incentive only for investment in treatment equipment. The

\textsuperscript{18} OECD Environmental Policy Making in the 1990s, p. 91 at pp. 95-96.

\textsuperscript{19} In such cases income tax assessment must necessarily take the following into account:
   a) an investment tax credit for the purchase of new purification units;
   b) the ability to deduct depreciation of the capital cost of equipment over its useful life; and
   c) annual operating costs. If the purification equipment have to be replaced at the end of each depreciation period then the replacement cost will also have to be taken into account. \textit{Supra.} n.1, p. 43.

\textsuperscript{20} John Hopkins, "Resources For the Future" in Frederik R. Anderson, \textit{et al.}, \textit{op.cit.}, p. 16.
fact that they do not stimulate creative market place responses is an inherent drawback of subsidy as an incentive. Lacking in incentive, inefficient and unfair, they do not induce the polluter to abate pollution nor do they help the waste treatment processes to become more efficient. Moreover, it is actually a liability on the government exchequer. Despite the drawbacks, subsidies are major elements of environment policies of many nations particularly OECD countries. They are easy to administer and are favoured

When subsidies are linked with the installation of plant for treating waste, they do not help reduce pollution through modification of production processes. Lastly, subsidies are never high enough to make pollution control profitable. They only reduce the loss which the polluter suffers from extra costs.

22 Ibid. "For obvious reasons, subsidies are unfairance, they transfer the burden of combating distalities from the pollution to the tax payer... For the government expenditure involved has to be offset by increased taxes and/or reduced expenditure in other areas".

For eg., in U.S., in the case of Water Pollution, the use of both standards (Ambient Standards and effluent standards) is coupled with a massive federal subsidy programme for construction of waste treatment facilities. Again, the cost of installations can be written off in five years, if the costs are incurred for factories operating before 1st January, 1969. The Swedish Government has since 1969 been giving industrial enterprises subsidies of 25% of the costs of environmental investments. In December 1971 the subsidy percentage was raised to 75%.
In West Germany, 50% of the initial or production cost of movable installations (which includes all factory installations) and 30% of immovable installation can be written off earlier. But it applies only for existing factories.
In France an accelerated depreciation in the first year of 50% immovable constructions aimed at decreasing pollution of air and water.
In England accelerated depreciation for such installations are no longer necessary. Industrial enterprises are now allowed to write off their investments in medium installations for 40% in the very first year. In addition, investment subsidies of 20-22% are granted to industries in development areas of England."
by industry. But at the same time, unwarranted subsidies should be avoided.

Charges

'Charge' is the obligation to pay when environmental harm is produced and provides an incentive not to cause that harm. Though pollution charges for environmental degradation was suggested as an alternative measure long back, the difficulty in collecting information was a hurdle in the implementation of the process then. It is an additional measure within the regulatory system since it requires a regulatory framework and proper policing. Charges can be in the form of emission charges, user charges or product charges. Charges can be levied at different

24. Supra. n.21.
25. Supra. n.2.
26. Supra. n.8.
27. The information on which to base decisions concerning environmental impact is frequently lacking or at least incomplete. The complexity of ecological systems and of environmental processes, implies that environment decision making is sometimes necessarily based on a considerable amount of uncertainty, even if planners raise the right question.
28. Simon Ball and Stuart Bell, Environmental Law, op. cit., p.80.
29. Supra. n.18 at p.96.

Emission charges are payments on the emission of pollutants into air or water or into soil and on the generation of noise. Emission charges or taxes are calculated on the basis of the quantity of and type of pollutant discharged. User charges or taxes are payments for the costs of collective treatment of effluent or wastes and product charges are levied on products that are harmful to the environment when used in production processes.
stages of the manufacturing process applying different criteria. Thus it can both foster cost-effective redistribution of funds and create incentive for voluntary pollution abatement. It is a healthier device in protecting the unpriced but valuable resources like air, water and land though computing social damages pose enormous practical difficulties. It is a healthier device because its effectiveness is determined mainly by the ability of polluter to react. It is a double edged weapon. Charges can be levied in the fields of water pollution, air pollution, waste management and noise. And grater the cost-effectiveness of the approach adopted the lower the total bill that society must pay for achieving environmental standards. Its purpose

30. Supra. n.25 p.80-83. Charges can be:
   a) charge for the administrative cost of operating the regulatory system;
   b) charges reflecting the full environmental cost of activity;
   c) charges to finance environmental or pollution control measures or
   d) charges levied on polluting materials or processes. Also see R. Kannan, "Aim, Clean Technology" in The Hindu Survey of the Environment, 1992, p.147.
31. Rosencranz, "Economic Approaches to Air Pollution Control", op.cit..
32. Supra. n.39 p.5.
33. Supra. n.25.
34. Charge is an incentive because they prompt the polluter to choose the best solution and constantly improve his waste-treatment processes so as to reduce costs. Charges also enable financial resources to be made available for restoring damage and financing pollution control plant for joint use.
35. Supra. n.21. The charges may be fixed taking into consideration the average cost of controlling environmental harms in various industries, services and municipalities or upon an estimate somewhat sociological in nature. John Hopkins, "Resources for the Future" in Frederick R. Anderson, et.al., op.cit., p.7.
is to deter the industries and other services from misusing the valuable natural resources. 36

Charge is an immediate incentive, for, the cost of pollution can be reduced only if the polluter takes steps to reduce the discharge and therefore, the question of control techniques and technology is left to the discharger. 37 It can also effectively control the concentration of industries by fixing increased charges for those units located in busy areas and providing an incentive of comparatively less charges if the industries locate themselves in places further away from the cluster of industries. For e.g., when the location is shifted to an industrially backward area. But the difficulty to measure the damages is an impediment for levy of price on damages. Moreover, sometimes, it may be in small doses having a measurable impact only after long periods of accumulation or it may not be readily quantifiable. It can be emission charge. Thus it is a step for internalizing the external costs which means making the polluter pay for the damages.

Polluter Pays Principle

It is the allocation of the cost of pollution control and preventive measures, an economically sound policy prescription adopted by OECD countries long back.

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36. Id., p.25. Where there is no charge for dumping wastes into the rivers, the air or vacant land, factories and individuals will rely heavily on these means to get rid of the useless residue from their production processes.

37. Id., p.34.
The principle to be used for allocating cost of pollution, prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so-called 'Polluter Pays Principle'. The principle means that the polluter bears the expense for carrying out the above mentioned measures decided by the public authorities to ensure that the environment is in an acceptable state.38

Later it has also been adopted by European Community. It supports long term efficiency and sustainability which should not be sacrificed for immediate short term gains. The polluter pays in order to prevent the undesired environmental effects or to eliminate them. It will not be correct to interpret this principle as constituting an excuse to continue pollution, paying the price. For, the idea is to improve the quality of environment by collecting from the polluter himself. Whereas, on the other-hand, it is an incentive to polluters to adopt measures for reducing pollution and thereby relieving themselves from paying. It is based on the rationale that environment related property rights are neither specific nor exclusive. That is, no one has got the right to pollute the environment. It cannot be interpreted merely as the imposition of levies and each polluter is to pay according to the extent of their responsibility in pollution.39

Tax

Tax is another form of charge where, it is not the pollutant but the product that is charged. It will be an alternative to effluent or emission charges where the basic technical choices affecting pollution do not involve the possibility of effluent cleaning.\(^40\) It is comparatively easy for administration since it is not necessary to collect detailed information about individual polluters.\(^41\) It is intended to promote the production and use of environment friendly products.\(^42\) The idea is to make companies as well as customers environmentally conscious. It involves the participation of both producers and customers. Thus the scheme of eco-labelling is an indirect incentive to encourage production and sale of such products.

** Tradable permits**

This approach is a method of creating a market in the right to pollute. The total allowable level of pollution is set and authorise firms to conduct market exchanges of permit.\(^43\) It

40. For eg. Environmental taxes is appropriate to deal with CO\(_2\) emissions where effluent cleaning is not an option.
41. S.Venu, *op.cit.*, See also Rosencranz, "Economic Approaches to Air Pollution Control", *op.cit.*.
42. Thus reduced tax payable on unleaded petrol compared with leaded petrol led to a rise in the use of unleaded petrol in many countries. In India also it is about to introduce the same.
43. It involves the issuance of marketable "rights licenses to pollute. Under this system ceiling is established on the level of permissible pollution, and a limited number of permits to pollute are then issued and traded in the open market. New polluters will have to buy the rights from existing holders if there is no spare capacity. Rosencranz *op.cit.*.
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provides an incentive for discharges releasing less pollution than their prescribed limits allow and trade the differences to other discharges in need of it. This does not have to begin or stay at status quo. This measure is widely applied as a powerful tool in combating the international problems like global warming and ozone depletion. The idea is to restrict the amount of such gases benign for ozone depletion and global warming as part of the international commitments under the Montreal Protocol to cut emission by specified dates. This system of selling charges started with the concept of ambient standards for a particular

44. Permits can be first issued for some fractions of current emission and permit holders can be given a deadline to reach that limit. Permit can also be designed to move towards stricter standards. Robert N. Stavins, "Harnessing Market Forces to Protect the Environment", op. cit., p.28.

45. In America EPA has introduced the "emission trading" whereby firms that reduce emissions below the levels required by law receive a credit that can be used to allow greater emissions elsewhere. This has already saved $5 billion in the cost of air pollution control over the last several years. EPA has also formulated the offset policy designed to avert a complete halt in development which allows new source of pollution to be established if it controls its emissions and if other sources in the area reduce their emissions more than enough to offset the added pollution - that is, if there is a net reduction in air pollution. See "The Clean Air Act Amendments, 1990. 22 E.L.R. 10159 In U.K. ground work for its use is laid in the Environmental Protection Act 1990, Section 3 (5) which allows the Secretary of State to establish total emissions of any substance either nationality or for a limited area, and to allocate quotas, with power progressively to reduce the total allowed.

46. The idea is to reduce stratospheric ozone depletion by phasing out potential ozone depletors with tradable permits. The restrictions are set by Montreal Protocol to the 1985 Vienna Convention for the protection of ozone layer. For eg., the U.K. Commitment is to stabilise emissions at 1990 level by 2005.
region. 47 But the chances of monopolizing trade by purchasing the pollution permits permissible may adversely after the governmental policies. 48

Deposit Refund System

In this scheme a front end tax works as a deposit with a refund payable afterwards. It serves the purpose of promoting better waste management. The refund may be payable when quantities of toxic substances are reduced considerably by recycling or when it is turned into designated facilities for disposal. 49

The system works to achieve the incentive to follow rules for proper disposal as well as an urge to find out nonhazardous substitutes. The scheme can be wisely used in the management of hazardous waste. 50

Enforcement Penalties

It is effectively used today as a complementary within a regulatory system. Penalty constitute charges for noncompliance of regulatory requirement. But it can either be a meagre amount or a quantum assessed in terms of the economic benefit gained by the polluter from noncompliance with pollution control requirements. 51

Though criminal law uses both sanction and penalty as

47. John Hopkins, "Resources For the Future", op.cit., p.28.
48. Rosencranz, "Economic Approach to Air Pollution Control", op.cit., p.28.
49. In this system a deposit is paid on the acquisition of potentially polluting products when pollution is avoided by returning the products or their residuals and a refund follows.
51. Supra n.48
devices for regulating environmental harms, it is the latter that is more effective and serve better purpose in environmental matters.\(^ {52}\) It is used to safeguard the purpose of carrying out justice in society.\(^ {53}\) It is actually a common law remedy of 'damages' in a modified form where exemplary damages are caused.\(^ {54}\) It is deterrent in nature and serves as an incentive encouraging polluters to avoid such consequences by adherence to adequate control measures. But there is the inherent problem of enforcement since the polluters prefer to contest and argue with the authorities upon the feasibility of the decision.\(^ {55}\) For, it is for the authorities to prove the charge against the offenders beyond any doubt. Penalty for non-compliance is today a common feature of almost all environmental statutes.

But, a shift in the environmental policy towards the greater use of economic instruments is taking place gradually.\(^ {56}\)

\(^{52}\) Simon Ball and Stuart Bell, *op.cit.*, p.85.


\(^{54}\) Ibid.


\(^{56}\) Simon Ball and Stuart Bell, *op.cit.*, p.84.
Because, whether it is a permit system or a charge or deposit refund system, there is a shift of burden which is different from that of regulatory mechanism. The polluters are left free to adopt adequate measures for reducing their economic liability. The type of incentive will invariably depend upon the nature of pollution. Similarly it can also be designed to foster specific pollution abating behaviours relating to any or all of several steps in the production process. Incentives can also be designed to check concentration of industries by adopting higher taxes or charges in heavily polluted areas.

Today economic incentives constitute one important category amongst those instruments designed to achieve the environmental goals. It can be a substitute or a compliment to other policy instruments such as regulation and cooperative agreements. The role of OECD in elevating economic incentives to such a position is great, initiated with the introduction of the polluter pay principle. Later, when OECD instructed its member states

57. For eg. when it is the subsidy and charges more feasible in the case of water pollution caused by industries, the taxes and permits will be of better use for avoiding air pollution and deposit-refund will be more effective against pollution caused by deposit of waste on land.


59. Ibid.

60. Ibid.

to experiment with economic incentives it turned out to be a victorious step towards achieving the goal. In 1991 OECD formulated at its 75th session on 10.1.1991 the Guidelines and adequate the policy and recommendations for the use of economic incentives in environmental policy. And it is the fulfilment of a long felt need for accepting various recommendations at different times by the Council. It aimed at sustainable and economically efficient management of environmental protection, control and damage costs by a consistent use of market mechanisms. OECD in its guidelines recognised environmental effectiveness; economic efficiency; equity; administrative feasibility and cost and acceptability as the criteria for choice of environmental policy instruments. And now experience shows that economic incentives can successfully be considered to tackle international and global problems such as acid rain, global warming and

62. Supra. n.26. Thus OECD laid down the recommendations and Guidelines having regard to - Article 5(b) of the Convention on the OECD of 14th December 1960.
63. - International Economic Aspects of Environmental Policy (26th May 1972);
- Implementation of Polluter - Pay Principle (November 1971);
- Application of Polluter - Pay Principle to Additional Pollution (7th July 1989);
- Comprehensive Waste Management (28th September 1976);
- Water Management Policies and Instruments (5th April 1978);
- The Re-use and Recycling Beverage Containers (3rd Feb., 1978);
- Noise Abatement Policies (3rd July 1979);
- Strengthening Noise Abatement Policies (29th June 1985);
- Water Resources Management Policies, integration, Demand Management and Groundwater Protection (31st March 1989);
- Declaration on "Environment: Resources for the Future" (20th June 1985);
- Ministerial Committee for the designing of such guidelines for the use of economic instruments and of market mechanisms to achieve environmental goals (31st May 1990);
- Ministerial Declaration of the Second World Climate Conference of 7th November 1990 etc.
64. Supra. n.26.
stratospheric ozone depletion in the most cost effective manner. 65

WICEM recommended to Government to give priority to incentives and performance based environmental standards and regulations leaving industry to select the best means of meeting them. 66 UN also did not keep silent on the matter at the Rio Conference. The idea is well established and explicitly provided in the principles laid down. 67

Economic Incentives in India

As it is in any other country, penalties are prescribed by the environmental legislation. 68 The increasing of non-compliance fees in a big way is an effective way to ward off pollution. 69 Thus failure to comply with any direction or violations of the conditions of consent under Water Act

65. For example, in order to reduce CO₂ emissions and solution is to introduce tradable permits for specified amount of CO₂ world wide. Such an agreement was also indicated by Ms. Brundtland in WCED Our Common Future (Oxford 1957).

66. For details see infra, chapter 10, pp. 379, 380

67. "Rio Declaration" in Environmental Policy and Law, 221. Principle 16: National authorities should endeavour to promote the internalisation or environmental costs and the use of economic instruments taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

68. See infra. nn. 7D-73.

will be punished. Similar provisions are there in the Air Act. Environment (Protection) Act, 1986 provides the maximum amount of fine with additional fine for continuing the non-compliance. In all these cases it is rather the possibility of a stigma of criminal sanction than economic loss that work as a disincentive for pollution. According to one author even the fact that the punishments have been increased after the 1988 Amendments may not have the desired effect of preventing and controlling pollution. On the contrary it might aggravate the

70. Under the Water Act 1975, the chapter VII dealing with 'penalties and procedure' Sections 41-45A. Prescribe fine for varying offences. Thus section 41 prescribes punishment upto three months imprisonment or fine upto ten thousand rupees or both with an additional fine extending upto five thousand rupees per day for continuance of failure to comply with the direction. Section 42 also provides for penalty alongwith imprisonment for obstructing the functioning of the Pollution Control Board. The Amendment Act of 1988 has introduced a new provision in Section 45A for contravening any of the provisions of this Act where the penalty prescribed extend to ten thousand rupees and for continuing contravention the additional fine upto five thousand rupees for every day during such contravention.

71. Under the Air Act 1981, the Chapter VI dealing with penalties and procedures, sections 37, 38 and 39 prescribe fine upto ten thousand rupees alongwith imprisonment. These sections have been substituted by Amendment Act 47 of 1987 where the amount has been increased considerably. They also prescribe additional fine which may extend to five thousand rupees for every day during the continuance of contravention.

72. Environment (Protection) Act, 1986, Section 15. The fine may extend to one lakh rupees and in case the failure or contravention continues additional fine may extend to five thousand rupees for every day during continuance of such failure or contravention.
inhibitions of the court/prosecuting agencies in launching prosecutions.\textsuperscript{73} It is opined in juristic circles that this sword of Democles will be more practicable in the case of corporate bodies than a single small industrialist especially when other penal measures prove to be least effective.

However, in the case of the greatest industrial accidents the world has ever known, namely, the Bhopal disaster there seems to have been musical chair drawn enacted. Just after the incident took place Mr. Anderson, the Managing Director of Union Carbide Corporation set his foot in the Bhopal, he was arrested and kept in the guest-house with all facilities of a VIP. He was then taken to the capital for discussion at higher levels and was allowed to go back without restrictions on his movement. The 1989 settlement exculpated all those who were in the array of accused persons. However, in the review the Supreme Court reviewed this position and declared no criminal proceedings will abate.

\textsuperscript{73} Supra. n.54 at p.183.

\textsuperscript{73a} Union Carbide Corporation v. Union of India (1991)4S.C.C. 584.
As an alternative to these enforcement difficulties incentives are proposed. Implementation of these suggestions has been carried out by the Government when 'Incentives for Environmental Protection' was published providing tax concessions of varying nature. Prime Minister announced dispersal of industries as an important national objective policy to avoid concentration of industries in overcrowded metropolitan areas. Fiscal incentives were declared for the spread of industries to

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74. P.V.S. Namboodiripad, "Economic Incentives for Environmental Improvement", [1984] C.U.L.R. p.77. This author suggested interest free loan, exemption from Central excise duty or reduction for the same, concessions in income tax, electricity tariff and import duty, investment subsidy and state wide awards for small, medium and large scale industries. Id., p.80.

75. "Incentives For Environmental Protection", (PIB release issued on 28th March 1985), in (1985) 2 Comp.L.J. p.133. Thus a depreciation allowance at 30 percent is allowed on devices and systems installed by industrial units for minimising environmental pollution. Again a grant of investment allowance at a higher rate of 35 percent against the general rate of 25 percent of the actual cost of new machinery or plant for pollution control. To encourage shifting of industries from overcrowded cities, capital gains arising from transfer of buildings or land are exempted from tax. A rebate at the rate of 70 percent of the actual cess on water on the installation of all pollution abatement devices. Again section 35 CCB of the Income Tax Act, 1961 provides for 100 percent deduction of the amount when the object of the programme is environmental protection.

backward areas which included concessional finance by All India lending institutions, subsidy on fixed capital investment and preferential treatment in the grant of industrial licence.77

The need for providing incentives as a promotional measure for prevention and control of pollution is also recognised by Government today. The National Conservation Strategy and Policy Statement on Environment and Development78 has acknowledged the fiscal incentives for the installation of pollution control devices.79

As part of the implementation of these policies the Government has included pollution control subsidies into the category of subsidising welfare activities such as health, education and communication.80 These subsidies are generally in the form of low

77. Incentives for setting up industries in 'No Industry districts 'backward areas'. (Ministry of Industry Press Note dated 27.4.1983) in (1983) 2 Comp.L.J. p.137.


79. These measures envisages among other things: incentives for environmentally clean technologies, recycling and reuse of wastes and conservation of natural resources - operationalisation of "polluter pays principle" by introducing effluent tax, resource cess for industry.

80. Supra. n.69.
interest loans and tax incentives. Fiscal subsidies of varying nature are elaborately planned. Though the Industrial Policy Resolutions from time to time provide incentives to industries for different purposes it did not cover environmental matters till the Industry Policy Statement of 1980.

The Policy Statement on Environment and Development regards operationalisation of 'polluter pay principle' as an action point of environmental considerations. This should be so when industrial growth is encouraged. The policy recommends.

81. Ibid. For eg., now IDBI and ICICI are channeling low interest funds from International Bank for Reconstruction and Development (IBRD) to help set up common and individual effluent treatment plants and development of cleaner technologies.

82. Paristhitivarththa 12 and 13(Environment News), 1992 April-Sept. Thus the Central Ministry for Environment and Forest has evolved a scheme for this purpose with World Bank aid of $15.5 crores. According to this cluster of Small Scale industries will be provided with common plant and 20% of the expense will be born by Central Government and State Government each (20+20) 40% will be by Industrial Development Bank of India. Only 20% will be taken by the Industry. Even middle class industries as well can join it. But no government aid will be given for them. Again, small middle scale industries will be given aid upto 36% for their demonstration plants for reducing the production of waste. 40% grant will be given by the Central Government. Big industries and medium industries having chances of more pollution will be granted loan upto 75% for pollution control measures. For eg., sugar, leather, paper and pulp, paints, petrochemicals fertilizers, insecticides, drugs and distillery are such type of industries provided with financial aid.

83. Industrial Policy Statement, 1980 para 28 and 29. The policy ensured special assistance including finance on concessional terms for optimal utilisation and energy or the exploitation of alternative source of energy as well as activities that will reduce deleterious effects on pollution of air and water. The Government also planned to consider schemes for soft loans to include in it activities related to energy conservation, exploitation in non-traditional sources of energy like solar energy and control of water and air pollution.
effluent tax and resource cess for industry. It can be seen that the idea of collecting cess from industries for the water consumed has already been incorporated into a legislation as early as in 1977. It is with a view to augmenting the resources of the Central Board and State Board for the proper implementation of the Water Act, 1974 that this legislation was enacted. Thus, the cess shall be payable by every person carrying on any specified industry and every local authority for any of the purposes specified, at a rate fixed under the Act. But only those industries listed in the Schedule I need pay the cess.

84. Supra. n.79 p.10-11.
86. The Act begins by stating: "An Act to provide for the levy and collection of cess on water consumed... with a view to augment the resources of the Central Board and State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974.
87. Water Cess Act, 1977, Section 3 (2)(b) and the Schedule II has fixed cess for the water consumed for industrial purposes. As per this table the maximum rate is three-fourth of a paise per kilo-litre for water used in industrial cooling-spraying in twice pits and boiler feed, two paise per kilo-litre for processing where by water get polluted and pollutants are easily bio-degradable while two and half paise per kilo-litre when the pollutants are not easily bio-degradable and are toxic.
The criteria for collecting cess is only the quantum of water, as a resource, used. It is not the nature or extent of pollution resulting from the process. So, the Act is effective in protecting the environment partially. While, more than the consumption of water, it is the effluents discharged that will adversely affect the environment and result in hazards. Again, the Act covers only water as a resource leaving behind air and land. Hence it seems to be not an adequate provision. There should also have been effluent charges as well as emission charges to serve the purpose of an incentive that not only reduces resource consumption but also enhances control measures. Thus, one wonders whether the Water Cess Act incorporate the 'polluter pay principle'.

ECOMARK - An Incentive

The Scheme of eco-labelling environment friendly products, while products containing harmful ingredients are put up with warning label is a novel idea incorporated into our environmental legislation in order to promote consumer interference in environmental protection. According to this scheme, Government lays

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89. The cess is collected for the water consumed irrespective of the polluting nature of the industry. Therefore, when highly polluting industries are sometimes outside the purview of the Act, others that they not even cause least pollution are compelled to pay the cess.

1) To provide an incentive for manufacturers and importers to reduce adverse environmental impact of products.
2) To reward genuine initiatives by companies to reduce adverse impacts.
3) To assist consumers to become environmentally responsible in their daily lives by providing information to take
down criteria for particular manufacturing process as well as products and manufacturers are left free to seek the ECOMARK by complying with those criteria. An environment conscious society will promote the use of products having the label and will be an incentive to industries to opt for the same. Thus the criteria for a few products are already finalised and now it is for the manufacturers to comply with the same and get the ECOMARK for their products.

National Award for Prevention of Pollution

This scheme of National Awards is to encourage industries and operations to take significant steps for prevention of pollution. It is being offered to both big industries coming under accounts of environmental factors in their purchase decisions.

iv) To encourage citizens to purchase products which have less harmful environmental impacts,
v) Ultimately to improve the quality of the environment and to encourage sustainable management of resources.

91. The Environmental Criteria for each product category will be notified by Central Government and later on shall be translated into Indian Standards by the Bureau of Indian Standards. For the purpose the environmental impact of the products is assessed taking into consideration factors like potentiality of pollution, recyclability and biodegradability of the product, contribution to saving non-renewable resources etc. G.S.R.No.85(E), serial No.5, op.cit., page 187.

92. The products will then bear the logo of ECOMARK. This logo the picture of an earthen pot - See Appendix.

93. The final criteria for products like paper, architectural paint, detergent and soap are published.
3. Notification, G.S.R.706(E) dtd 15 November 1991 pp. 5- (for detergents)
the category of highly polluting industries as well as small scale industries. Eligibility for the awards is based on several consideration. Such as efficiency in achieving quality of the environment. The idea is to boost the polluting industries to compete for reducing pollution considerables.

Deposit Refund Scheme is yet another strategy of incentive comparatively later in origin. Public Liability Insurance Scheme envisaged by General Insurance Corporation of India, though compensatory in nature, is a step in this direction where industries are under compulsion to take insurance premium.

But the scheme envisaged under the Environment (Protection) Act, 1986 for the management and handling of hazardous wastes is silent about promoting the same by providing incentives.

95. Ibid. Award numbering up to eighteen (18) will be given each year, once in each of the identified category of highly polluting industries. These industries have been identified as:

96. Ibid. Award numbering up to five (5) will be given each year to small scale industries in the following categories:
   (1) Tanneries (2) Pulp and paper (3) Dye and Dye Intermediates (4) Pesticides (5) Pharmaceuticals.

97. Supra. n.72 note no.8.


99. See supra. chapter 4, pp. 115,125
Thus it can be seen that use of economic incentives as a means for controlling pollution and environmental degradation, is yet to bring different strategies within its purview in our country. But widening the range of regulatory instruments and supplementing them with economic instruments is the need of the day. For, in comparison to the clear cut and concrete provisions introduced by developed nations\textsuperscript{100} responsible for more than 80\% of the total industrial pollution our country still lags behind. We are dependent more on regulatory instruments and enforcement dictums to be implemented from above, by the Government and administrative bodies than on incentives that generate voluntary schemes for pollution abatement.

\textsuperscript{100} Robert N. Stavins, "Harnessing Market Forces to Protect the Environment", \textit{op. cit.}, pp.5-7.

For eg., EPA began to experiment with emission trading in 1974 and introduced the 'Offset' programme in 1976. These programmes were codified in EPA's 'Final Policy Statement on Emission Trading' in 1986 and EPA's programme have resulted in saving more than \$4 billion in control cost with no adverse effect on air quality. Again the Project 88 Report, a bipartisan effort to find innovative solutions to major environmental and natural resource problems, has conferred a new political legitimacy on economic - incentive based approaches to environmental problems. Similarly Environmental Defence Fund was the first of the major environmental organisations to advocate incentive - based policies. The various recommendations in the 'Project 88 Report' are designed to increase environmental protection and economic productivity by providing incentives for businesses and individuals to go beyond what regulation can require.
Role of Workers in Control of Industrial Pollution

Worker is a person employed in an industrial establishment.101 Worker's concern for the industries is more because he is both a beneficiary102 as well as a victim of industrial activities.103 Working environment in the modern industries is much more polluted in the era of chemical and nuclear activities endangering his life with immediate or remote consequences.104 Generally termed occupational health hazards, almost all industrial activities carry with it such consequences.105 The occupational diseases are mostly severe in nature and effect but are slow or even remain undiagonised as an occupational disease in

101. The Bill introduced in the Rajya Sabha on 25th May 1990 known as "The participation of workers in Management Bill, 1990" defined worker under Section 2 (1) to mean any person employed in any industrial establishment to do any manual, unskilled, skilled, technical, operational, clerical, supervisory, managerial or administrative work for higher or reward. The Bill also distinguished between worker and a workman. Workman defined in section 2 (j) means any worker, but does not include any such worker who is employed in a supervisory or administrative capacity draws wages exceeding ₹1,600 per month or exercises...functions mainly of a managerial nature. R. Santhanam, "Worker's Participation in Management" in (1990) 2 Comp.L.J. 121.


103. Industrial risks are on an increase. Whether it is pollution or accidents, workers are the immediate affected "social protection and working conditions" (Preventing Industrial Disasters). World Labour Report, p.78.


105. Duna Roy, op.cit. For example garage workers, petrol pump attendants are all affected persons as is the workers of highly polluting industries like asbestos industry. Study conducted by ICMR (Indian Council for Medical Research) found that even a process like manufacture of state pensils caused silicosis among the workers.
several cases. Workers are the group that bear the hazards of industrial pollution more than anyone else. This results not only due to the pollution hazards involved but also due to the negligence and carelessness of the workers at work places as they fail to adhere to safety measures strictly. Industrial laws have always shown interest in protecting his interests by providing him with certain rights and he is also

106. Ibid. For eg, industries like asbestos industry cause lung diseases that are incurable eventually leading to cancer or death. But since the period of exposure may be as long as 20 years and in most cases these are diagnosed as simple bronchites, asthma or tuberculosis who do not care to know the trade he is of.

Erik P. Eckholm op.cit., It is noted that occupational exposures to asbestos alone, which peaked, in developed countries in the 1950s... account for anywhere from 3 to 18% of U.S. Cancer deaths today, thirty years after the main exposures. Those working in a variety of other industrial processes too have belatedly discovered the invisible dangers of their jobs.

107. WHO has estimated the 3% of global burden of disease is caused by preventive injuries and deaths in high-risk occupation and by chronic illness stemming from exposure to toxic substances, noises and hazardous work patterns. World Development Report, 1993, p.95.

It is estimated that every three minutes one worker dies of an occupational injury or illness and every second at least three workers injured in the world. Every year 1.8 lakh workers die and 11 crores get injured in occupational accidents. Arunkumar Bhatt, "Dangerous Work", Hindu Survey of the Environment, 1993 p.84.

According to ILO the cost of occupational injuries aid deaths in industries is between 1 and 4% of GNP.

108. For example in the case of Bhopal tragedy the Union Carbide alleged the negligence of workers as the reason for such an accident.

109. World Development Report, 1995 p.78. See also Rosencranz, Environmental Policy and Law in India, p.2. Thus workers participation in plant safety and stringent penalties on high level management for the breach of factory safety regulations are expected to reduce accidents.
entrusted with duties for ensuring his safety\textsuperscript{110} and improving working and living conditions. Environmental protection can be achieved to certain extend if industrial workers make use of the safety devices and also take efforts to avoid pollution by appropriate measures.\textsuperscript{111} And this requires educating workers and creating in them environmental awareness.\textsuperscript{112} Moreover, there are sometimes even instances of acts of mischief or sabotage.\textsuperscript{113} Whether it is a routine pollution or an act of mischief, accident or natural disaster workers are the first and most affected and preparing them to meet and reduce its adverse consequences demands co-operation between the management, workers, the government and regulatory authorities and the community.\textsuperscript{114} It is at this juncture that Trade Unions have to resume action the field of environmental protection in addition to its routine


\textsuperscript{111} Ibid. Because most accidents are caused by unsafe working conditions and practices.

\textsuperscript{112} Supra. n.8.

\textsuperscript{113} Alleviating occupational risk depends on safety education for workers and managers, use of appropriate equipment and technology and sound management practices. See also N.S.Chandrasekharan, op.cit.

\textsuperscript{114} Ibid. p.79. See also World Development Report, 1993, op.cit. The two things that industries should take into consideration are (1) Prevent accidents by taking appropriate safety measures (2) Minimise the consequences of any accidents which do occur by ensuring that plant is at safe distance from rousing and drawing up effective emergency plans. It is only through a co-operative effort that such consequences can be brought under control.
activities. Trade Unions can play a major role in detecting and solving problems including environmental questions. Such functioning requires that they have access to necessary information, they are involved in consultation and negotiating mechanisms and their participation is ensured in the planning stage itself. Efforts to these results have already been stated. Such participation in turn promote also the right

115. International Conference of Free Trade Unions (ICEFTU) EPL, 16/5 (1986) p.173. The immediate working environment is and has been a direct concern of Trade Unions all over the world. See also World Development Report, 1995, p.78; N.S.Chandrasekharan, op.cit., Trade Unions consider themselves to be generally concerned with service problems of workers.


117. Id., p.173.

118. Ibid. ILO has established occupational health and safety standards, ICEFTU, International Trade Secretariates and Officiates are active in seeking to ensure that union representative at work place are fully equipped to monitor health and safety practices. EC, in 1982 adopted the "Servo Directive" and each country in the EC has enacted legislation to implement the servo directive - servo directive covers both lower risk sites as well as high risk sites. Soci. Protection and Working Conditions, op.cit., p.78. In Germany prevention of work related illnesses and the continuous implementation of measures to protect the environment and health form a cornerstone of the worker and environmental protection policy of the DGB and its affiliated Unions, German Federation of Trade Unions, EPL 16/1 (1986) p.39. The Federation of the German Trade Unions (DGB) in the paper "Environment Protection and Qualitative Growth" opts for (1) polluter pay principle (2) prevention to be more strongly applied (3) surcharges levied as a control instrument of environmental policy (thus pollution inducing production made more expensive and less profitable (4) sharing the burden by using public funds for special cases etc. as the positive measures for control of pollution. (EPL 16/1 (1986) p.14). Industrial countries have enacted law requiring worker representation on working conditions committees protecting "Whistle blowers" to a test to dangerous working conditions. Again ILO conventions on workers health and safety such as occupational cancer convention, occupational Health and Safety Convention and Asbestos Convention etc. are a few other steps though have been
to information. The significance of the role of labour union in ensuring compliance with health and safety standards is already proved in the developed countries. ILO's Asbestos Convention provided that employers and workers or their representatives shall co-operate as closely as possible at all levels in implementing the measures prescribed for protection and safety. Pollution hazards are encountered ratified by only few nations. Again, after Bhopal Incident, ILO instituted Occupational Safety and Health Hazard Alert System. In Mohan A. Prabhu, G.C, "Hazardous Products Process and Wastes" in Human Rights: Perspectives p.203 at 206.

Ibid. See also "Workers get "Right to Know", 26 Environment", 22(1984) OSHA has issued final regulations giving factory workers access to information on the Health Hazard to work place chemicals. But labour organisations fear that the federal regulations could preempt state and local right to know. World Development Report, 1995, p.76 at 77. Such information is a cheaper and effective device in helping workers. A Union can spread the cost of obtaining information on health and safety issues among all workers, bargain with employers on the level of standards to be observed and monitor their enforcement without putting any individual worker at risk of losing his or her job.

For example in U.S. Labour Unions play an important role in enforcing health and safety standards. In a walk around employees accompany Government Inspectors during a tour of the work place. World Development Report, 1995 p.78.

by the workers involved in the manufacturing process alone but also by those who are engaged in agricultural farming where pesticides are in use for increasing production. The overall conclusion arrived is that Trade Unions can play an active role in compelling the authorities to provide healthy working environment and at the same time educate and train the workers to avail the precautionary measures complied with by monitoring employees compliance with government regulations. In our country Trade Union are yet to take up the task of pollution control, as a part of its duty to protect the interest of workers.

Workers participation in environmental protection is no more a hypothesis. Legislative recognition of the same have already been ensured under 1987 Amendment of the Factories Act.

122. Id., p.76. In 1971 a law suit was filed in Texas on behalf of 16,000 farm labourer's who claimed exposure to a pesticide proven to cause reproductive problems had made them sterile. In Costa Rica banana workers and their families suffer from an array of medical problems ranging from cancer to higher than average rates of birth defects. Health experts argue that these problems are caused by the potent pesticides used on plantations. WHO estimates that more than million agri-workers across Latin America are poisoned every year and that 10,000 die from exposure to chemicals.

123. World Development Report, 1995, p.79. See also N.S.Chandrasekharan, op.cit., p.172-174. According to him, the Trade Unions can work at different levels to protect the environmental safety of the workers which in turn will lead to environmental protection. They vary from involvement in the consent procedure under the environmental legislation to creating mass awareness of the problem of pollution which may extend even to practices such as boycotts, strikes and refusal to carry out works harmful to society.


125. See also Supra. chapter.V
The Government of India issued model Rule 123-A under Factories Act for adoption and today Asbestos industries have formed the "Asbestos Information Centre" affiliated to the Asbestos International Association (AIA), London. AIA has published a code of conduct for its members which ATC is following in India.\textsuperscript{126} WCED (Brundtland Report) also stressed that regulations and standards should govern among other things occupational health and safety of workers\textsuperscript{127} as part of sustainable industrial development. Supreme Court has also considered the occupational safety of workers as an essential ingredient of environmental protection.\textsuperscript{128} Role of workers and their unions to ensure healthy working conditions is great in the multinational corporations as it is evident already that such big industrial giants are more reluctant to adhere to environmental safety.\textsuperscript{129}

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\item \textsuperscript{126} As it is stated in Consumer Education and Research Centre v. Union of India, A.I.R. 1995 S.C. 922 at 942.
\item \textsuperscript{127} Our Common Future, p.220.
\item \textsuperscript{129} ILO Report shows that multinational corporations pay workers low wages and over charged 25 to 50\% for products supplied by the company where as they are involved in the manufacture of most hazardous products. See for details Gouri Shankar, Human Rights Accountability of Transnational Corporations" in K.P. Saksena, (Ed), Human Rights: Perspective and Challenge (199 ...) p.186 at p.191.
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